2006

The interest center choices of preschool children

Andree Schellhaas
Louisiana State University and Agricultural and Mechanical College

THE INTEREST CENTER CHOICES OF PRESCHOOL CHILDREN

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Science

in

The School of Human Ecology

Andrée Schellhaas
B.S., Louisiana State University, 2005
August, 2006

Table of Contents

Abstract

It is recommended practice for early childhood educators to provide children with extended periods of free play in which children are able to learn through hands-on experiences with the classroom environment (Bredekamp & Copple, 1997; Cryer, Harms, & Riley, 2003; Harms, Clifford, & Cryer, 1998). Early childhood educators plan meaningful experiences for each interest center on based on standards and objectives. While some children choose to participate in all the activities provided, other children require additional assistance in choosing between the variety of experiences provided in the early childhood classroom environment. Children that avoid spending time in certain interest centers or spend time not engaged in any activity miss the opportunity to practice the skills. In this study, a choice board intervention was implemented to help children participate in identified low preference interest centers more often and spend less time not engaged in any activity.

Introduction

Statement of Problem

It is considered a recommended practice to organize early childhood classrooms into interest centers (Cryer et. al., 2003) and to schedule time for children to participate in the centers of their choice during free play for 1/3 of the center's operating hours (Harms et. al., 1998). Early childhood educators and researchers believe that during this free-choice center time, children should be allowed to choose the centers and activities for themselves (Bredekamp & Copple, 1997). Following the above-mentioned guidelines is considered part of developmentally appropriate practice for preschool-aged children.

In addition to ensuring the room is developmentally appropriate, preschool teachers must consider the grade level expectations established by the state (Louisiana Department of Education, 2004) and the objectives stated in the individualized education plans (IEP) of each child with special needs. Children are required to master certain skills by the time they exit preschool. Teachers should use state standards and IEP objectives to plan different experiences in each center that provide opportunities for children to practice specific skills (Grisham-Brown, Hemmeter, & Pretti-Frontczak, 2005). In inclusive early childhood environments, both typically developing children and children with special needs may avoid certain centers or spend time not engaged with any materials. By avoiding certain centers and spending time not engaged with materials, children may not have the opportunity to practice the skills provided in each center. Decreasing the amount of time children spend not engaged and increasing the amount of time children spend in identified low preference interest centers may lead to skill development (Bailey & Wolery, 1992).

Conceptual Framework

Much of what many people consider common practice in early childhood classrooms is grounded in the theories of Maria Montessori, Jean Piaget, and Lev Vygotsky. The work of these theorists has influenced many aspects of today's early childhood classrooms. Collectively, these theories may be referred to as constructivist theories (Elkind, 2003; Mooney, 2005; Gonzalez-Mena, 2005). The following discussion on Montessori, Piaget and Vygotsky is based on Mooney (2005).

Maria Montessori. Montessori placed an emphasis on the environmental arrangement of the classroom. Montessori believed that classrooms should be child-centered, equipment and furniture should be child-sized, tools should work, and materials should be accessible to children. She believed that children learn through sensory experiences and teachers have the responsibility to provide multi-sensory experiences to all children. Montessori believed that the teacher's role in the classroom was to prepare the environment, provide appropriate materials, and step back. By arranging the classroom with low, open shelves, children are able to see what materials are available and get what they need without assistance from a teacher. Montessori's work provided the foundation for the work of Piaget and Vygotsky.

Jean Piaget. Building on the work of Montessori, Piaget developed his theory of constructivism. Piaget first used the word *constructivist* to describe the way children learn. His theory of constructivism described the process of a child's learning as the construction of knowledge through interactions with the environment. Piaget believed that children's play helped them to make sense of their world. Through building on the work of Montessori, Piaget influenced early childhood programs by recommending children be given periods of uninterrupted play. Piaget also believed that children's cognitive development progressed in stages. Each of Piaget's stages of cognitive development describes the ways children are able to

learn about and understand the outside world. Children between the ages of 18 months and six years are in Piaget's preoperational stage. Piaget believed that children in the preoperational stage of cognitive development learn through direct, real-life experiences.

Lev Vygotsky. Vygotsky developed Social Learning Theory by building on the works of Piaget and Montessori. Vygotsky's Social Learning Theory describes children's learning through the interaction of social and cognitive development, with each building on one another. Vygotsky believed that play provides children with opportunities to develop language skills and help one another with cognitive tasks. Vygotsky explained that children's social surroundings and interactions affect cognitive development through his concept of the zone of proximal development. A child's zone of proximal development describes the distance between a task a child can complete alone and the most difficult task that child can complete with assistance. The assistance offered by a teacher or peer is referred to as scaffolding. A child benefits from social interactions through the scaffolding offered by peers.

Summary. Constructivist theories have influenced many aspects of early childhood education. The arrangement of a classroom into interest centers and scheduled free-choice-center time supports the constructivist belief that children should be provided with uninterrupted periods of time in which they can explore and discover their environment (Gonzalez-Mena, 2005).

Objective

The purpose of the study is to identify children's preferences of interest centers and to identify strategies to encourage them to spend time in the centers identified as low preference interest centers.

Limitations

1. The present study will examine where children spend their time, but not the quality of the play demonstrated in each center.
2. The common practice in the preschool is to change themes with the interest of the children and rotate materials on a weekly basis (Grisham-Brown et al., 2005). The novelty/change of materials could impact where the children spend their time.

Definitions

1. Interest Centers – The clearly defined and appropriate play places of a classroom in which children are provided with all the materials needed for a particular type of play (Cryer et. al., 2003). The classroom sections may include any number of the following: blocks, table toys, dramatic play, computer, art, music, writing, reading/library, and science
2. Free Choice Center Time – The scheduled time of a school day when children are allowed to choose the interest centers in which they would like to play. During this time, children are allowed to divide the time they spend in each interest center as they choose.

Assumption

The following assumption guides the study:

Repeated observations of the children's choices among interest centers were representative of each child's interest center choices.

Review of Literature

A review of literature is organized across major topics related to the study. The review of literature consists of a summary of the current views of play in early childhood education, a summary of current recommendations involving the early childhood classroom environment, a review of choice board interventions, and a historical overview of inclusion.

The Importance of Play

The National Association for the Education of Young Children (NAEYC) recommends that schools provide play experiences for all preschool and primary-aged children (Bredekamp & Copple, 1997). Research has shown that play provides children from infancy through the primary years with experiences that promote social, cognitive, and language development (Stegelin, 2005). Additionally, inclusive classroom settings may allow children with special needs greater opportunities to initiate play with their typically developing peers than traditional, self-contained special education classroom settings. In inclusive early childhood classrooms, children with special needs may observe and replicate the actions of their typically developing peers (Couse & Clawson, 2000).

Cognitive Development. Stimulating play environments are believed to facilitate higher levels of thought throughout childhood (Stegelin, 2005). Informal interactions with peers in play situations may foster the social competence behaviors that are necessary for learning and development (Stegelin, 2005). Vygotsky believed that play provides children with the opportunity to practice skills within his zone of proximal development (Elkind, 2004). Through interactions with peers, children are able to model more advanced skills than they may be able to perform independently. Play provides children with the opportunity to apply and use the skills and knowledge they have already acquired (Miller, 1998). Although a young child may be unable to successfully pour drink into a cup, that child can practice the skill using a toy cup and

pitcher. Practicing skills allows children to feel competent and master these skills (Klein, Worth, & Linas, 2004).

Social Development. Research has shown that play may support the social competence of both typically developing children and children with special needs (Couse & Clawson, 2000). The competence gained through play may lead a child to have feelings of self-efficacy, contributing to that child's sense of self (Klein et al., 2004). Play provides children with a context in which they can explore their surroundings. Children learn about the social world and are able to practice social skills through play (Klein et al., 2004). Through play-based interactions with others, children are able to form opinions of themselves, others, and the outside world (Chafel, 2003).

Language and Literacy Development. Social skills, oral language development, and dramatic play are believed to support one another (Stegelin, 2005). As children socially interact with one another, they are able to practice and refine their oral language skills. Research has shown that some play-based activities in early childhood settings help to promote literacy development (Stegelin, 2005). Literacy-related behaviors observed during play include paper handling, storytelling, and attempts at writing and reading (Morrow & Rand, 1991). During play, children are able to practice, elaborate, and extend emergent literacy abilities (Morrow & Rand, 1991).

Children with Special Needs. Early childhood educators should consider the importance of play and social interactions when planning for the classroom and encourage both typically developing children and children with special needs to engage in high levels of sophisticated play. Research has shown that children with special needs in inclusive settings engage in social interaction less often than their typically developing peers (Odom, 2000).

However, children with special needs should spend time in proximity to peers to gain the social benefits of inclusion (DiCarlo, Benedict, & Aghayan, 2006).

In a study by Couse and Clawson (2000), children with special needs were seen participating in lower levels of play that involved social interaction as compared to their typically developing peers. The typically developing children in this study were observed engaging in higher levels of more complex play (Couse & Clawson, 2000). The differences seen between the play activities of typically developing children and children with special needs may show a necessity for educators to guide students with special needs to participate in more child-initiated interactions and higher levels of more complex play (Bricker & Woods Cripe, 1992).

Classroom Environment

In *Developmentally Appropriate Practice in Early Childhood Education* (Bredekamp & Copple, 1997), NAEYC provides guidelines for the arrangement of early childhood programs. When planning the environment, NAEYC suggests the following: (1) that teachers prepare a learning environment that fosters children's active exploration of materials and considers the individual needs of each child when choosing materials; (2) that teachers provide a safe and healthy environment while encouraging children to do what they are capable of doing for themselves; (3) that teachers organize a daily schedule that allows for alternating periods of active and quiet time; and (4) that teachers provide at least one hour each day for children to engage in play (Bredekamp & Copple, 1997).

The arrangement of the classroom environment is believed to influence the behaviors of young children (Landry, 2005). While following the guidelines provided by NAEYC, teachers may also need to consider the specific arrangement of the interest centers in the classroom and the types of materials provided (Harms et. al., 1998; Cryer et. al., 2003). The *Early childhood environment rating scale-revised edition* (ECERS-R) is a tool that early childhood educators can

use to assess the quality of their classroom environment and determine ways to improve the quality of their environment (Harms et. al., 1998). This tool scores early childhood environments across the following sub-scales: space and furnishings, personal care routines, language-reasoning, activities, interaction, program structure, and parents and staff.

High/Scope suggests that teachers divide the classroom into clearly defined spaces organized around specific types of experiences (Hohmann & Weikart, 1995; Cryer et. al., 2003). It is also suggested that high-quality early childhood environments contain at least five different interest centers that provide a variety of learning experiences (Cryer et. al., 2003). The materials provided in each interest center should be easily accessible so that each child can use them independently (Cryer et. al., 2003).

It may be suggested that teachers think about the environment in terms of balance (Gonzalez-Mena, 2005). Not only is it suggested that teachers create a balance in the types of centers provided, but also that they arrange the environment in a way that separates quiet centers from noisy centers (Gonzalez-Mena, 2005, Harms et. al., 1998). When planning the arrangement of the classroom, teachers may also consider the need for a balance in the following five dimensions: soft/hard, intrusion/seclusion, mobility, open/closed, and simple/complex (Gonzalez-Mena, 2005).

Adaptations for Children with Special Needs. Children with special needs may need changes in the classroom environment in order to encourage the initiation of successful interaction with other children or objects (Cook, et al., 2000). Changes based on a child with special needs' individual preferences may be an opportunity for that child to initiate interactions with his/her typically developing peers. Materials that contribute to positive social interactions may assist in socially integrating an inclusive classroom (Cavallaro et al., 1993). If a child with special needs requires a change in the classroom environment, the necessary changes will be

stated in that child's IEP. Some beneficial changes to the classroom environment may not be stated in the child's IEP, for example, in early childhood classrooms, educators may need to reflect on the individual toy and material preferences of each child (Wolery & Wilbers, 1994).

Choice-Making

Choice-making can be a useful intervention strategy for young children because it supports a young child's need to assert independence (Pavia & Da Ros, 1997). Children's self-esteem is fostered in classroom environments that provide children with choices and the opportunity to participate in activities in which they can feel successful and in control (Brewer, 2004). By giving a child a choice, he is able to feel that he is in control of his actions. Research has shown that choice-making can improve social relatedness, task performance, and levels of disruptive behavior (Dunlap et al., 1994)first time cited list all authors unless there is 7 or more (check APA).

Most studies involving choice-making focus on children with developmental delays, but choice-making strategies can also be effective with typically developing children. In a study by Dunlap et al., (1994) children with behavioral challenges were given a choice board intervention to increase task engagement and decrease behavioral problems The percentage of intervals with task engagement was greater during the choice phases of the study than during the no choice phases of the study. Intervals with disruptive behavior were lower during the choice-making phases of the study Also, children that complained about completing tasks during the no-choice phases of the study did not complain about completing the same tasks during the choice phases of the study The choice-making intervention in this study resulted in reduced disruptive behaviors and increased task engagement among participants Although they found that a choice-making intervention was useful with typically developing children with behavioral challenges

Inclusion

Legal History. Federal legislation involving children with special needs began in the 1900's. In 1973, Head Start required that 10% of children enrolled in each Head Start program were to be children with disabilities (U.S. Department of Health and Human Services, 1998). Public Law 94-142 introduced the concept of least restrictive environment (LRE) in 1978. Public Law 94-142 required that the principle of the LRE was to be used when determining the appropriate placement for children with disabilities. The Individuals with Disabilities Education Act (IDEA) later restated that the LRE principle applies to all school-aged children, including preschool-aged children. The Americans with Disabilities Act (ADA) provided further support for inclusion by stating that public programs, including early childhood programs should be accessible to people with disabilities and that services can not be denied to anyone on the basis of disability. Although early court decisions ruled in favor of the restrictive placements provided by school systems, decisions that are more recent have become more supportive of the desire of parents to place children in inclusive settings (Osbourne & DiMattia, 1994).

Changes in Language Used. The term *inclusion* began to appear in the early 1990's in response to the way in which mainstreaming was being implemented in schools (Odom & Diamond, 1998). The term *inclusion* calls for a more embedded and comprehensive involvement of children with special needs and typically developing children than what was currently occurring in mainstreamed programs (Odom & Diamond, 1998).

Benefits. Professionals and family members of children with special needs believe that inclusive settings provide greater developmental benefits than nonintegrated settings (Odom & Diamond, 1998). Research has shown that inclusive classroom settings may benefit both children with special needs and typically developing children. Research has shown that inclusive settings may benefit children with special needs by providing the following: a more challenging

learning environment, opportunities to observe and model typically developing peers, a real-life context for learning skills, a more socially responsive environment, and more realistic social consequences (Lamorey & Bricker, 1993; Guralnick, Connor, Hammond, Gottman, & Kinnish, 1996). Research has also shown that inclusive settings may benefit typically developing children through the following: helping children learn about and understand differences in the ways people grow and develop, helping children to become more aware and accepting of their own strengths and weaknesses, and creating an environment that nurtures the development of more accepting attitudes towards people with disabilities (Bailey, 1990).

Individual Needs. As children with special needs are integrated into early childhood classrooms, educators may need to consider the individual requirements of each student. Children with special needs may succeed in an integrated classroom; but in order for children with special needs to make the best use of obtainable developmental opportunities, educators may need to provide children with special needs with additional support (Cavallaro et al., 1993). Children with special needs may experience optimal learning in inclusive settings that include available peer models, realistic consequences, and appropriate interactions (Bailey, 1990). Although children with special needs are able to share a curriculum with their typically developing peers, each child with special needs may require activities to be adapted to fit his/her developmental needs (Richarz, 1993).

Summary

Research has shown that play may be beneficial to both typically developing children and children with special needs (Couse & Clawson, 2000). It is believed that play promotes young children's cognitive development, social development, and language/literacy development. Children with special needs may benefit the most from inclusive environments that support and guide their social interactions with children (Bricker & Woods Cripe, 1992).

Changing the environment to meet the guidelines described by NAEYC may increase a child's quality of play and the time that child spends engaged in an activity (Gonzales-Mena, 2005). Early childhood educators may also use the ECERS-R to evaluate and improve their classroom environment. Other curriculum and classroom changes that can be made may be stated in the IEP of each child with special needs or may be decided through collaborations between the classroom teacher, a special education teacher, and the family of each child with special needs. If a child continues to spend time not engaged after environmental changes have occurred, a choice-making intervention is an option that may be considered to increase his time spent engaged in an activity (Dunlap et al., 1994).

Early childhood research and the law states that inclusive environments may provide benefits for children with special needs and typically developing children (Lamorey & Bricker, 1993; Guralnick et. al., 1996; Bailey, 1990). Research has shown that inclusive environments benefit all children by providing children with real-life settings, opportunities to understand ways different people learn, and more accepting approaches toward others (Bailey, 1990).

Method

Setting

This study was conducted in an inclusive, four-day a week, half-day program serving 22 children, with equal amounts of males and females. Twelve of the children were four-years-old and ten were three-years-old. The classroom staff included a lead teacher and two graduate assistants. The program was NAEYC accredited and organized into the following interest centers: table toys, blocks, science, reading, art, music, dramatic play, computer, and writing. The classroom used a theme-based approach and materials were rotated based on child interest.

Participants

Participants were children enrolled in the preschool program. The interest center choices of twenty-one children in the program were observed. Baseline data was used to determine which children would be targeted for intervention. A child was included in the intervention if baseline data showed that he was observed as spending time not engaged and was observed as spending less than ten percent of his time in five or more interest centers. Children were grouped into three cohorts of two children each. Harold, age 3 and Patrick, age 4, were in Cohort 1. Rachel, age 3, and Gabby, age 4 who had a diagnosis of Down syndrome, were in Cohort 2. Maria, age 4, and Arthur, age 3, were in Cohort 3.

Behavior Definitions

During free-choice-center time the children were able to choose among the following interest centers: table toys, blocks, science, dramatic play, writing, art, music, computer, or reading. A child was designated as in a particular interest center (see above list of centers) if he met both of the following criteria: (1) he was physically within the boundaries of the interest center, and (2) he was engaged in meaningful, and appropriate interactions with materials or was looking at other children who were engaged with materials in that interest center. One exception

was if the child was wearing dramatic play clothing/props and interacting in a role play situation or directing the behavior of others related to materials anywhere in the room, that child was recorded as participating in dramatic play.

A child was recorded as *not engaged* if the child was not participating in any activity, was not looking at anyone participating in an activity, was fighting, or was being corrected by a teacher. If a child was seen walking around the room not engaged in any activity, the researcher used a stopwatch to wait five seconds before recording the child as *not engaged*. If in that five seconds the child became engaged, the researcher recorded that the child was participating in the new activity.

Experimental Design

A single-subject method was used to record the interest centers in which each child played. Single-subject research designs examine the performance of individuals before and during an intervention. In single-subject designs, individuals are compared to themselves instead of other groups (Alberto & Troutman, 2006). Experimental control is demonstrated by implementing the intervention across settings, people or behaviors at different periods in time and receiving the same outcome (Cooper, Heron, & Heward, 1987). Single-subject designs rely on clinical significance rather than statistical significance. The results of a study are said to have clinical significance if the intervention of the design results in enhanced functioning, an observable and measurable improvement in functioning for participants (Alberto & Troutman, 2006).

A multiple baseline design (see Kazdin, 1982) was used to measure the impact of a choice board intervention across individuals. When using a multiple baseline design, there is no need to withdraw intervention to demonstrate experimental control. The choice board intervention in this study was introduced to each cohort sequentially to determine if each child's

choice changed with the introduction of the choice board intervention and to demonstrate the functional control of the independent variable.

Procedures

Observation System. The observers were three graduate students who were trained with written instructions and practice sessions. The observers reviewed the definitions of play in each interest center with the primary researcher before conducting the observation sessions. The children were observed for 30 minutes during the free choice period of the day. A momentary time sample was used to record the interest center choices of individual children. A momentary time sample allows researchers to observe the actions of participants at set intervals for a determined period of time (Bailey & Burch, 2002). A momentary time sample is a method used by researchers who are unable to continuously watch participants and record every action taken by the participants (Bailey & Burch, 2002). A momentary time sample was used in this study to allow the researcher/teacher to continue with the naturally occurring classroom routine. The inability of researchers to record every action taken by participants can be considered a limitation of a momentary time sample. To control for the limitation of a momentary time sample in this study, several observations were taken to provide an estimate of the frequency each child spends in each interest center (Bailey & Burch, 2002). Throughout each 30-minute observation session, at five-minute intervals the researcher recorded the interest centers in which each child was playing (see Figure 1). The researcher observed the children until a stable pattern of behavior was observed (Kazdin, 1982). Observations totaled four months across baseline and intervention.

Date: Observer: 5 Minute Momentary Time Sample, 30 Minutes Total

Name	Blocks	Table Toys	Reading	Snack/ Bathroom	Science	Art/Easel	Music	Dramatic Play	Computer	Writing	Not Engaged
Name	Blocks	Table Toys	Reading	Snack/ Bathroom	Science	Art/Easel	Music	Dramatic Play	Computer	Writing	Not Engaged

Figure 1: Data collection sheet

Baseline. Children were observed for 30-minute observation periods during free-choice-center time. Teachers were not given any instructions regarding their behavior or materials in the classroom. The goal of the baseline data was to determine the interest center choices of each child. The researcher observed the children until a stable pattern of behavior was observed (Kazdin, 1982). The researcher created graphical representations of the choices made by each child during baseline. Graphed data was visually inspected to determine which children participated in the intervention (Kazdin, 1982). Children were targeted to participate in the intervention if they were observed spending time not engaged and were observed as having five or more identified low preference interest centers. A center was identified as a low preference interest center for a child if that child was observed spending less than ten percent of his time in that center.

Choice Board Intervention. The choice board intervention consisted of a felt board with Boardmaker™ Picture Communication Symbols (Mayer-Johnson, 2003). Three-by-three inch Boardmaker™ symbols that represented the different interest centers were placed onto the choice board (see Figure 2). These symbols corresponded to eight-by-eight inch symbols that were placed at the children's eye-level in the interest centers of the classroom. Symbols for interest centers were selected for each child based on the centers that were identified as that child's low preference interest centers during the baseline condition. The low preference interest center symbols used on each child's choice board were rotated so that each child was given different choices each time he was presented with the choice board.

Figure 2: Boardmaker™ symbols used on choice boards.

The choice board intervention was implemented as follows. At each five minute interval, the researcher looked for each child participating in the intervention. If a child was not playing in one of his low preference interest centers, the researcher presented the child with a choice board displaying two of his low preference interest centers. The researcher pointed to each symbol while providing the name of the interest center and asked the child where he would like to play. For example, if the choice board displayed Boardmaker™ symbols for the blocks center and the writing center, the researcher would point to the symbols and ask, "Would you like to play in the block center or in the writing center?" Choice was indicated by each child either touching the symbol, verbally naming the interest center, or looking toward the chosen interest center. After the child made his choice, the researcher guided the child to the selected center. One minute after the child made his choice, the researcher recorded the interest center in which the targeted children were playing. However, if a child was playing in one of his low preference interest centers, the researcher left the child alone and checked on him at the next 5 minute interval.

Interobserver Reliability. Interobserver agreement refers to the evaluation of how well data from separate observers correspond (Kazdin, 1982; Cooper et. al., 1987). It is generally assumed that if observers record the same behavior, their data probably reflects the actions of the participants (Kazdin, 1982). It is recommended that reliability checks be conducted throughout all phases of the experiment on at least 20% of observation sessions with interobserver agreement of 80% or higher (Kazdin, 1982; Cooper et. al., 1987). Interobserver agreement checks were conducted on 21% of all observation sessions, across baseline and intervention conditions. Interobserver agreement was calculated across interest centers, and individual children using a point-by-point agreement ratio (Kazdin, 1982). Agreements of the observers on the interest center choices of children were divided by the number of agreements plus disagreements and multiplied by 100 to form a percentage (Kazdin, 1982; Cooper et. al., 1987;

Alberto & Troutman, 2006). Agreements were recorded when observers recorded the same interest center choices for children, whereas disagreements were recorded when the observers recorded a child as engaged in different interest centers. Interobserver agreement across interest centers was 95% (range 50%-100%). Interobserver agreement across children was 97% (range 71%-100%).

Results

This study examined the impact of a choice board intervention on the interest center choices of preschool children. Specifically, the study examined the average amount of time children were observed spending time in low preference centers and not engaged in any activity before and during a choice board intervention. Results are presented for each cohort (see Figure 3 & Table 1) as well as for individual children (see Table 2) across baseline and intervention.

The amount of time spent in low preference centers varied for each cohort across baseline and during the choice board intervention (see Figure 3 & Table 1). During baseline, children in Cohort 1 spent an average of 25% (range, 0% - 45%) of their time in low preference centers; children in Cohort 2 spent an average of 20% (range, 0% - 60%), and children in Cohort 3 spent an average of 35% (range, 0% - 71%). After the choice board intervention was applied, all three cohorts showed an increase in time spent in low preference centers relative to baseline. Children in Cohort 1 spent an average of 93% (range, 75% - 100%), an increase of 68%. Children in Cohort 2 spent an average of 83% (range, 67% - 100%), an increase of 63%. And children in Cohort 3 spent an average of 95% (range, 90% - 100%), an increase of 60%.

During baseline, the amount of time spent in low preference centers and the amount of time spent not engaged varied for each child (see Table 2). For children in Cohort 1, Harold and Patrick displayed an average 24% (range, 0% - 75%), and 21% (range, 0% - 50%) of their time in low preference centers, and 13% (range, 0% - 33%) and 2% (range, 0% - 33%) of their time not engaged. For children in Cohort 2, Rachel and Gabby displayed an average of 15% (range, 0% - 50%) and 33% (range, 0% - 100%) of their time in low preference centers, and 11% (range, 0%-33%) and 5% (range, 0%-25%) of their time not engaged. For children in Cohort 3, Maria and Arthur displayed an average of 33% (range, 0% - 100%) and 41% (range, 0% - 67%) of their

time in low preference centers, and 4% (range, 0% - 100%) and 5% (range, 0% - 33%) of their time not engaged.

When the choice board intervention was applied, all six children showed an increase in time spent in low preference centers and a decrease in time spent not engaged (see Table 2). There was an average increase in time spent in low preference centers of 63% and an overall decrease of 10% in the amount of time children spent not engaged. For Cohort 1, the average time spent in low preference centers for Harold was 94% (range, 17%-100%) and for Patrick was 93% (range, 75%-100%); time spent not engaged was observed 0% for both Harold and Patrick. For Cohort 1, the average increase in time spent in low preference centers was 70% for Harold and 72% for Patrick. The average decrease in time spent not engaged was 13% for Harold and 2% for Patrick. For Cohort 1, the average time spent in low preference centers for Gabby was 71% (range, 33%-100%) and for Rachel was 95% (range, 75%-100%); time spent not engaged was observed 0% for Gabby and 3% (range, 0%-17%) for Rachel. The average increase of time spent in low preference centers was 38% for Gabby and 80% for Rachel. The average decrease in time spent not engaged was 5% for Gabby and 8% for Rachel. For Cohort 3, the average time spent in low preference centers was 95% (range, 80%-100%) for Maria and 95% (range, 83%-100%) for Arthur; time spent not engaged was observed 0% for both Maria and Arthur. The average increase of time spent in low preference centers was 62% for Maria and 54% for Arthur. The average decrease in time spent not engaged was 4% for Maria and 5% for Arthur.

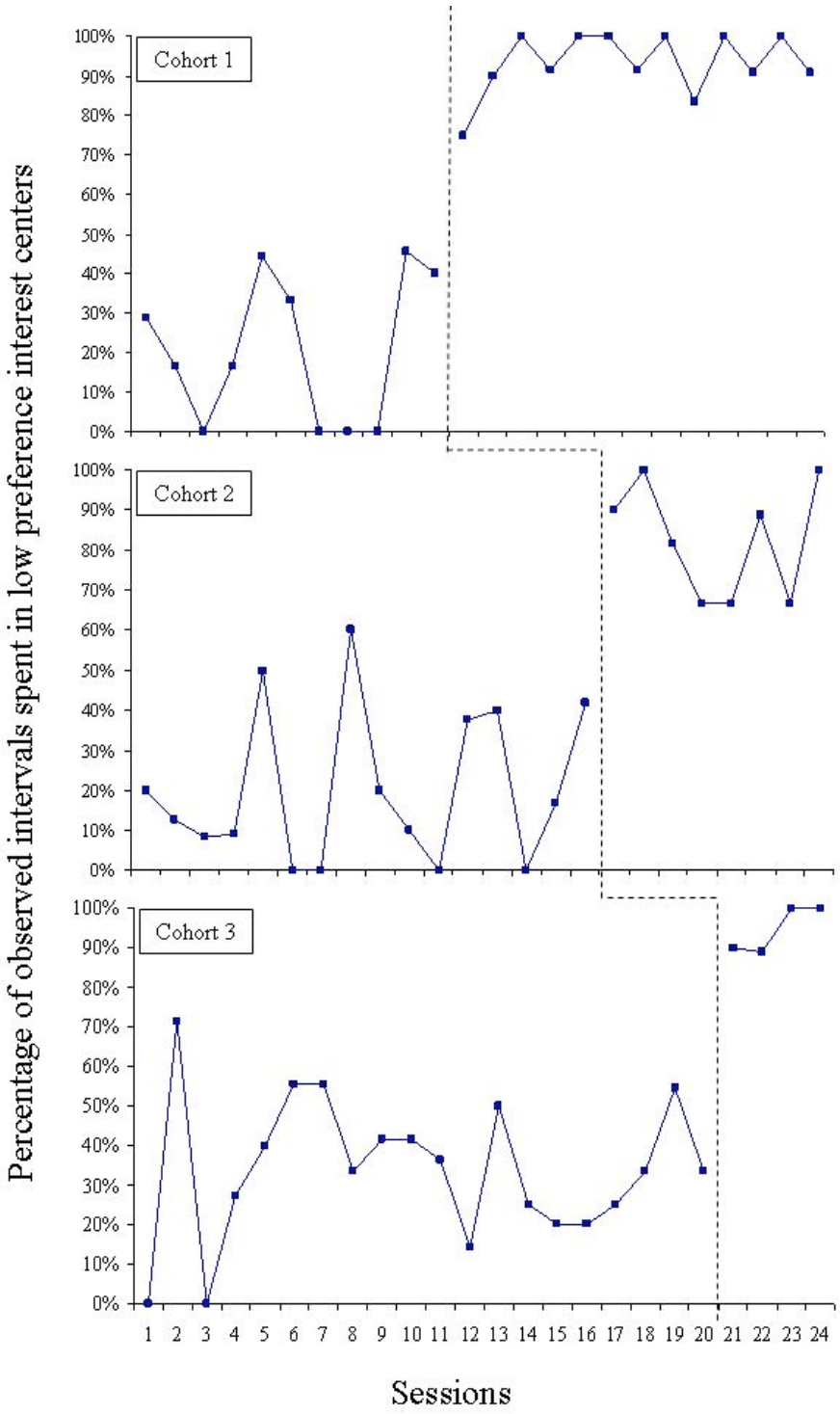

Figure 3: Observed percent of time spent in low preference interest centers for individual cohorts across baseline and intervention.

Table 1: Average percentage of time spent in low preference centers for individual cohorts

	Baseline	Intervention	Change
Cohort 1			
	25%	93%	68%
Cohort 2			
	20%	83%	63%
Cohort 3			
	35%	95%	60%

Table 2: Average percentage of time spent in low preference centers and not engaged for individual children

		Baseline	Intervention	Change
Cohort 1				
	Harold			
	low preference centers	24%	94%	70%
	not engaged	13%	0%	13%
	Patrick			
	low preference centers	21%	93%	72%
	not engaged	2%	0%	2%
Cohort 2				
	Rachel			
	low preference centers	15%	95%	80%
	not engaged	11%	3%	8%
	Gabby			
	low preference centers	33%	71%	38%
	not engaged	5%	0%	5%
Cohort 3				
	Maria			
	low preference centers	33%	95%	62%
	not engaged	4%	0%	4%
	Arthur			
	low preference centers	41%	95%	54%
	not engaged	5%	0%	5%

Discussion

It is considered a recommended practice for early childhood educators to plan classroom experiences based on the arrangement of interest centers (Bredekamp & Copple, 1997; Cryer et. al., 2003) and to provide children with the opportunity to participate in free-choice-play from a variety of experiences (Brewer, 2004). Well thought-out classroom interest centers provide children with opportunities to practice necessary developmental skills while addressing state standards and IEP objectives. When children avoid specific centers or spend time not engaged in any activity, they miss opportunities to practice the skills provided in the centers they avoid. While some children are able to successfully participate in all the interest centers provided in the classroom, other children require more teacher guidance to effectively participate in all classroom activities.

The present study used a choice board intervention during center time, which incorporated child choice to assist children in accessing low preference centers and decreasing the amount of time they spent not engaged. Results indicate that a choice board intervention may be a useful tool that teachers can use to encourage children to spend more time in identified low preference interest areas and spend less time not engaged. The children in the present study displayed an average increase participation in low preference interest centers of 63% and decrease in observed not engaged behaviors of 10%.

Clinical Implications

Results of the current study suggest that teachers can assist children in accessing multiple interest centers within the framework of developmentally appropriate practices by providing structured choices. The use of a choice board is consistent with recommended practice and ensures that children take advantage of necessary developmental skills across all centers of the classroom. Decreasing the amount of time children spend not engaged is likely to lead to skill

development (Bailey & Wolery, 1992). Increasing the amount of time children spend in previously identified low-preference centers provides opportunities to practice a variety of skills, such as state standards or IEP objectives which have been embedded across interest centers (Grisham-Brown et. al., 2005). Teachers can use a momentary time sample to determine the low preference interest centers of children in their classroom. By using a choice board intervention specifically targeting identified low preference centers, classroom teachers are able to ensure that children are accessing all centers of the classroom, thus practicing necessary skills.

Although all children involved in the study experienced an increase in the time spent in low preference interest centers during the choice board intervention, the typically developing children in the study displayed greater gains than the children with special needs. During the choice board intervention the typically developing children in this study displayed an average increase of 68% (range, 54% - 80%) of time spent in low preference interest centers, the child with special needs displayed an increase of 38% of time spent in low preference interest centers. This finding is consistent with previous research that states that developmentally appropriate practices provides an appropriate framework for children with special needs, but that additional teacher support may be necessary in order for children with special needs to experience the optimal benefits of the inclusive setting (Wolery & Wilbers, 1994; Richarz, 1993).

The rotation of materials may have lead to the variability observed during baseline observations. It was a common practice in the preschool to change art and writing materials daily based on the interest of the children and to rotate toys on a weekly basis. The novelty of new materials may have influenced some of the children's choices in interest areas. However, the practice of rotating these materials was consistent across both baseline and observation sessions.

Implications for Future Research

Additional research is warranted to examine the quality of play children demonstrate in each center. This study focused on where children spend their time, but not the quality of the play demonstrated in each center. Measuring the quality of play children demonstrate in each center and identifying strategies of increasing the quality of play in each center may provide useful information to educators and researchers about strategies that help children to gain the most from play environments.

References

Alberto, P.A., & Troutman, A.C. (2006). *Applied behavior analysis for teachers* (*7th ed.*). Upper Saddle River, NJ: Pearson Education, Inc.

Bailey, D.B. & Wolery, M. (1992). *Teaching infants and preschoolers with disabilities.* Englewood Cliffs, NJ: Prentice Hall.

Bailey, D.B. (1990). Normalizing early intervention. *Topics in early childhood special education*, 10(2), 33-42.

Bailey, J., & Burch, M. (2002). *Research methods in applied behavior analysis.* Thousand Oaks, CA: Sage Publications, Inc.

Bredekamp, S. & Copple, C. (1997). *Developmentally appropriate practice in early childhood programs (revised edition)*. Washington, D.C.: National Association for the Education of Young Children.

Brewer, J. (2004). *Introduction to early childhood education: Preschool through primary grades (fifth edition)*. Boston, MA: Pearson Education, Inc.

Bricker, D & Woods Cripe, J.J. (1992). *An activity-based approach to early intervention*. Baltimore, MD: Paul H. Brooks Publishing Co.

Cavallaro, Haney, & Cabello. (1993). Developmentally appropriate strategies for promoting full participation in early childhood settings. *Topics in Early Childhood Special Education, 13(3),* 293-307.

Chafel, J.A. (2003). Socially constructing concepts of self and others through play. *International Journal of Early Years Education, 11(3),* 213-221.

Cook, R.E., Tessier, A., & Klein, M.D. (2000) *Adapting early childhood curricula for children in inclusive settings (5th ed.)*. NJ: Merril.

Cooper, J.O, Heron, T.E., & Heward, W.L. (1987). *Applied behavior analysis.* Upper Saddle River, NJ: Merril.

Couse, L.J. & Clawson, M.A. (2000). *Social play of preschool children with special needs and typically developing children*. Syracuse, NY. (ERIC document Reproduction Service No. ED447943)

Cryer, D., Harms, T., & Riley, C. (2003). *All about the ECERS-R: A detailed guide in words and pictures to be used with ECERS-R.* Lewisville, NC: Pact House Publishing.

Dicarlo, C., Benedict, J., Aghayan, C. (2006). Social proximity of preschoolers with disabilities in an inclusive classroom. Manuscript submitted for publication.

Dunlap, G., DePerczel, M., Clarke, S., Wilson, D., Wright, S., White, R. & Gomez, A. (1994). Choice making to promote adaptive behavior for students with emotional and behavioral challenges. *Journal of Applied Behavior* Analysis, 27(3), 505-518.

Elkind, D. (2003). Montessori and constructivism. *Montessori Life, 15(1)*, 26-29.

Elkind, D. (2004). Thanks for the memory: The lasting value of true play. In Koralek (Ed.), *Spotlight on young children and play* (pp. 36-41). Washington, D.C.: National Association for the Education of Young Children.

Gonzalez-Mena, J. (2005). *Foundations of early childhood education: Teaching children in a diverse society* (3rd ed.). New York, NY: McGraw Hill.

Grisham-Brown, J., Hemmeter, M. L., & Pretti-Frontczak, K. (2005). *Blended practices for teaching young children in inclusive settings*. Baltimore, MD: Paul H. Brooks Publishing Co.

Guralnick, M.J., Connor, R.T., Hammond, M., Gottman, J.M., & Kinnish, K. (1996). Immediate effects of mainstreamed settings on the social interactions and social integration of preschool children. *American Journal of Mental Retardation, 100(4)*, 359-377.

Harms, T., Clifford, R. M., & Cryer, D. (1998). *Early childhood environment rating scale* (Revised ed.). New York, NY: Teachers College Press.

Hohmann, M., & Weikkart, D. P. (1995). *Educating young children: A curriculum guide from High/Scope Educational Research Foundation*. Ypsilanti, MI: High/Scope Press.

Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446. http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108_cong_public_laws&docid=f:publ446.108

Kazdin, A.E. (1982). *Single-case research designs: Methods for clinical and applied settings*. New York: Oxford University Press.

Klein, T.P., Wirth, D., & Linas, K. (2004). In Koralek (Ed.), *Spotlight on young children and play* (pp. 28-34). Washington, D.C.: National Association for the Education of Young Children.

Lamorey, S. & Bricker, D.D. (2003). Integrated programs: Effects on young children and their parents. In Peck, C.A., Odom, S.L., & Bricker, D.D. (Eds.), *Integrating young children with disabilities into community programs: Ecological perspectives on research and implementation*, (pp. 249-270). Baltimore, MD: Paul H. Brooks Publishing Co.

Landry, S.H. (2005). *Effective early childhood programs: Turning knowledge into action.* Houston, TX: The University of Texas Health Science Center.

Louisiana Department of Education (2004). *Standards, assessments, and accountability: GLE related materials*. Retrieved April 1, 2005, from http://www.louisianaschools.net/lde/saa/1914.html

Mayer-Johnson, Inc. (2003). *Boardmaker* [Computer Software]. Solana, CA: DynaVox Technologies, LLC.

Miller, L. (1998). Play as a route to literacy. *Play and Literacy* (pp. 32-35). Oxford, UK: Blackwell Publishers.

Mooney, C.G. (2000). *Theories of childhood: An introduction to Dewey, Montessori, Erikson, Piaget, & Vygotsky*. Upper Saddle River, NJ: Redleaf Press.

Morrow. L.M. & Rand, M.K. (1991). Promoting literacy during play by designing early childhood classroom environments. *The Reading Teacher, 44(6),* 396-402.

Odom, S. & Diamond, K.E. (1998). Inclusion of young children with special needs in early childhood education: The research base. *Early Childhood Research Quarterly, 13(1),* 27-47.

Odom, S.L. (2000). Preschool inclusion: What we know and where we go from here. *Topics in Early Childhood Special Education, 20(1),* 20-27.

Osbourne, A.G., & DiMattia, P. (1994). The IDEA's least restrictive environment: legal implications. *Exceptional Children, 61,* 6-14.

Overton, T. (2004). Promoting academic success through environmental assessment. *Intervention in School and Clinic, 39(3),* 147-153.

Pavia, L.S. & Da Ros, D. (1997). Choice: A powerful tool in caring for toddlers. *Early Childhood Education Journal, 25(1),* 67-69.

Richarz, S. (1993). Innovations in early childhood education: Models that support the integration of children of varied developmental levels. In Peck, C.A., Odom, S.L., & Bricker, D.D. (Eds.), *Integrating young children with disabilities into community programs: Ecological perspectives on research and implementation,* (pp. 83-107). Baltimore, MD: Paul H. Brooks Publishing Co.

Stegelin, D.A. (2005). Making the case for play policy: Research-based reasons to support play-based environments. *Young Children, 60(2),* 76-85.

U.S. Department of Health and Human Services (1998). *Including children with significant disabilities in Head Start: Training guides for the head start learning community*. Retrieved May 16, 2006, from http://headstartinfo.org/pdf/children_significant/childrensignificant.pdf

Wolery, M. & Wilbers, J.S. (Eds.). (1994). *Including children with special needs in early childhood programs.* Washington, DC: National Association for the Education of Young Children.

Appendix: LSU Institutional Review Board Application

RC Mathews 11/14/05

LSU INSTITUTIONAL REVIEW BOARD (IRB)

04/15/2006

Study exempted by
Louisiana State University
Institutional Review Board
203 B-1 David Boyd Hall
225-578-8692
Robert C. Mathews, Chair

IRB APPLICATION: APPROVAL OF PROJECTS WHICH USE HUMAN SUBJECTS

The IRB uses this form to obtain succinct answers to questions it must consider. If incomplete, your application will be returned! You can download this form and all other IRB documents from http://appl022.lsu.edu/osp/osp.nsf/$Content/LSU%20IRB%20Documents) & complete it with your word processor. Call Robert Mathews for assistance, 225-578-8692, or e-mail him at: irb@lsu.edu.

When this application is submitted to the IRB please include:

- **Two copies of this completed form.**
- **A brief project description (adequate to evaluate risks to subjects)**
- **Copies of all instruments to be used. If this proposal is a part of a grant application include a copy of the grant proposal, the investigative brochure (if one exists) and any recruitment materials including advertisements intended to be seen or heard by potential subjects.**
- **The consent form that you will be using. A copy of the Waiver of Written Informed Consent is attached and must be completed only if you do not intend to use a signed consent form.**
- **Copies of your IRB stamped consent form must be used in obtaining consent.**
- **Certificate of Completion for Human Protection Training at http://cme.cancer.gov/clinicaltrials/learning/humanparticipant-protections.asp (Unless already on file with the IRB.)**

==========

(**IRB Use:** IRB# 2588 Review Type: Expedited___ Full ___)

==========

Part 1: General Information

1. **Principal Investigator:** Dr. Cynthia DiCarlo Rank: Assistant Professor
   (PI Must be an LSU Faculty member)

   Dept.: Human Ecology Ph: (225)578-7005

   E-mail: cdicar2@lsu.edu

Co-investigators*: Andrée Schellhaas

*Student? Y/N __ Thesis/dissertation/class project? Y/N ___

Dept.: Human Ecology Ph: (504)421-2421

E-mail: aschel1@lsu.edu

2. **Project Title:** Interest Area Choices Made by Children

3. **Proposed duration** (months): 6 months **Start date:** Nov. 20

4. **Funding sought from:** N/A

5. **LSU Proposal #:** N/A 6. **Number of subjects requested:** 22

6. **Are you obtaining any health information from a health care provider that**

contains any of the identifiers listed below? NO

A. Names

B. Address: street address, city, county, precinct, ZIP code, and their equivalent geocodes. Exception for ZIP codes: The initial three digits of the ZIP Code may be used, if according to current publicly available data from the Bureau of the Census: (1) The geographic unit formed by combining all ZIP codes with the same three initial digits contains more than 20,000 people; and (2) the initial three digits of a ZIP code for all such geographic units containing 20,000 or fewer people is changed to '000'. (Note: The 17 currently restricted 3-digit ZIP codes to be replaced with '000' include: 036, 059, 063, 102, 203, 556, 692, 790, 821, 823, 830, 831, 878, 879, 884, 890, and 893.)

C. Dates related to individuals

i. Birth date

ii. Admission date

iii. Discharge date

iv. Date of death

v. And all ages over 89 and all elements of dates (including year) indicative of such age. Such ages and elements may be aggregated into a single category of age 90 or older.

D. Telephone numbers;

E. Fax numbers;

F. Electronic mail addresses;

G. Social security numbers;

H. Medical record numbers; (including prescription numbers and clinical trial numbers)

I. Health plan beneficiary numbers;

J. Account numbers;

K. Certificate/license numbers;

L. Vehicle identifiers and serial numbers including license plate numbers;

M. Device identifiers and serial numbers;

N. Web Universal Resource Locators (URLs);

O. Internet Protocol (IP) address numbers;

P. Biometric identifiers, including finger and voice prints;

Q. Full face photographic images and any comparable images; and

R. Any other unique identifying number, characteristic, or code; except a code used for re-identification purposes; and

S. The facility does not have actual knowledge that the information could be used alone or in combination with other information to identify an individual who is the subject of the information.

YES Your study falls under the HIPAA (Health Information Privacy and Accountability Act) and you must obtain either a limited data set use agreement or a HIPPA authorization agreement from the health care provider. This agreement must be submitted with your IRB protocol.

NO You do not need a HIPAA agreement.

A. ASSURANCE: PRINCIPAL INVESTIGATOR (named above)

I accept personal responsibility for the conduct of this study (including ensuring compliance of co-investigators/co-workers in accordance with the documents submitted herewith and the following guidelines for human subject protection: The Belmont Report, LSU's Assurance with OPRR, and 45 CFR 46 (Available from OSP or at http://appl022.lsu.edu/osp/osp.nsf/$Content/LSU%20IRB%20Documents)

Signature of PI Carla DiCarlo Date 11-9-05

B. ASSURANCE OF STUDENT/PROJECT COORDINATOR named above

I agree to adhere to the terms of this document and am familiar with the documents referenced above.

Signature Andrea Schellhaas Date 11/9/05

Part 2: Project Abstract

The purpose of the study is to examine the interest area choices made by preschool children during free choice centers. Researchers will suggest specific intervention strategies to be implemented and measure the effectiveness of the intervention.

Part 3: Research Protocol

A: Describe study procedures

This study will measure the interest area choices made by 3, 4, and 5 year old children in the preschool classroom. The researcher will observe children using a momentary time sample to record the frequency that each child participates in different interest areas during a 30 minute period. Data will be collected until a stable pattern in children's interest area choices is evident. Based on the data, the children will receive intervention. Intervention will consist of changes to materials in the learning environment and/or the use of directive guidance strategies by their regular classroom teachers. Intervention will continue until a stable pattern of behavior is detected. The data will be shared with the child, the child's parents, teachers, and school director/administrator.

B: Answer each of the following questions.

1. Why is the use of human subjects necessary? (v.s. animals/in vitro)

   The purpose of the study is to examine choices of interest areas made by preschool age children.

2. Specify sites of data collection.

   Louisiana State University Human Ecology Laboratory Preschool

3. If surgical or invasive procedures are used, give name, address, and telephone number of supervising physician and the qualifications of the person(s) performing the procedures. Comparable information when qualified participation or supervision is required or appropriate.

   No surgical or invasive procedures will be used.

4. Provide the names, dosage, and actions of any drugs or other materials administered to the subjects and the qualifications of the

person(s) administering the drugs.

No drugs or other materials will be administrated to the subjects.

5. Detail all the physical, psychological, and social risks to which the subjects may be exposed.

   There are no physical, psychological, or social risks involved with participation in this study.

6. What steps will be taken to minimize risks to subjects?

   There are no physical, psychological, or social risks involved with participation in this study.

7. Describe the recruitment pool (community, institution, group) and the criteria used to select and exclude subjects.

   Children in the Human Ecology Child Development Laboratory Preschool will be invited to participate in the study.

8. List any vulnerable population whose members are included in this project (e.g., children under the age of 18; mentally impaired persons; pregnant women; prisoners; the aged.)

   Children under the age of 18

9. Describe the process through which informed consent will be obtained. (Informed consent usually requires an oral explanation, discussion, and opportunity for questions before seeking consent form signature.)

   Parents of children attending the preschool will be given a written informed consent form. Students will be given a simple oral explanation of the study by one of the researchers.

10. (A) Is this study anonymous or confidential? (Anonymous means that the identity of the subjects is never linked to the data, directly, or indirectly through a code system.)
    (B) If a confidential study, detail how will the privacy of the subjects and security of their data will be protected.

    This study is confidential. Only students' first names will be used on data sheets. Information will only be shared with a child's parent(s), the child's teacher(s), and the director of the preschool. Specific information concerning a child other than their own, will not be shared with parents.

Consent Form

1. **Study Title:**
   Interest Area Choices Made by Children

2. **Performance Sites:**
   Louisiana State University Human Ecology Laboratory Preschool

3. **Contacts:**
   Andrée Schellhaas, Graduate Student
   (504)421-2421 M-F, 8:30 a.m. - 5:00 p.m.
   Dr. Cynthia DiCarlo, Assistant Professor
   (225)578-7005 M-F, 8:30 a.m. - 3:00 p.m.

4. **Purpose of the Study:**
   This study will observe the interest area choices made by children.

5. **Subjects:**
   A. Inclusion Criteria
   Preschool students ages 3 to 5 who are enrolled at the Human Ecology Child Development Laboratory Preschool.

   B. Exclusion Criteria
   Children not enrolled in the Human Ecology Child Development Laboratory Preschool.

   C. Maximum number of subjects: 22

6. **Study Procedures:**
   The researcher will observe students during center time and record the interest areas in which each student entered. Based on the collected data, an intervention will be determined. Intervention will consist of changing materials in the classroom and/or providing directive teacher guidance. Data will then be collected to determine the effects of the intervention.

7. **Benefits:**
   After intervention, may show an increase in choosing specific interest areas.

8. **Risks/Discomforts:**
   There are no known risks for participation in this study.

10. **Right to Refuse:**
    Participation in the study is voluntary and that subjects may change their mind and withdraw from the study at any time without penalty or loss of any benefit to which they may otherwise be entitled.

11. **Privacy:**
    This study is confidential. Results of the study may be publicly presented for educational purposes and no identifying information will be included in the presentation. Information will only be shared with a child's parent(s), the child's teacher(s), and the director of the preschool. Specific information concerning a child other than their own, will not be shared with parents.

---

12. Parent(s) Signature:

'The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review Board, (225)578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a copy of this consent form if signed by me.'

My Child, _____,has permission to participate in the "Interest Area Choices Made by Children" study.

Parent Signature_____ Date_____

---

13. Child Assent

A researcher will read the following statement:

"Someone will watch you during centers to see where you play. A teacher may invite you to play in different interest areas. Is it okay if we see where you play during free choice centers?"

Subject Signature_____ Date_____

Students may write name, mark an X, or give verbal assent.

Student gives verbal assent_____

Student does not give verbal assent _____

---

5 Minute Momentary Time Sample, 30 Minutes Total														
Name	Blocks	Table Toys	Reading	Snack/ Bathroom	Science	Art	Easel	Music	Dramatic Play	Computer	Writing	Not Engaged

Vita

Andrée M. Schellhaas was born to Arthur and Juliette Schellhaas in Metairie, Louisiana. She is the youngest of three girls.

In May of 2000, she graduated high school from Mt. Carmel Academy in New Orleans, Louisiana. She left home to go to Louisiana State University, Baton Rouge. In May of 2005, she earned a degree of Bachelor of Science in family, child, and consumer sciences: nursery school-kindergarten teaching.

Upon graduation, she began her graduate coursework at Louisiana State University. Her goal was a degree of Master of Science in human ecology: early childhood education. From August 2005-May 2006, Ms. Schellhaas served as graduate assistant teaching three-year-old children in the LSU Child Development Laboratory Preschool.